

## WHAT IS CLAIMED IS

1. An agent for inhibiting IL-2 production and/or an agent for inhibiting immunocyte proliferation, each of which having low GATA-1 production inhibitory activity, comprising a selective HDAC4 and/or HDAC8 inhibitor.
2. An agent for suppressing immunity having low thrombocytopenic activity, comprising a selective HDAC4 and/or HDAC8 inhibitor.
3. A method of selecting an IL-2 production inhibitor and/or an immunocyte proliferation inhibitor which have low GATA-1 production inhibitory activity, which comprises measuring the HDAC4 and/or HDAC8 enzyme inhibitory activity of a test substance.
4. A method of selecting an immunosuppressant having low thrombocytopenic activity, which comprises measuring the HDAC4 and/or HDAC8 enzyme inhibitory activity of a test substance.
5. A method of selecting an immunosuppressant having low thrombocytopenic activity, which comprises steps (i) and (ii) below:
  - (i) measuring the HDAC4 and/or HDAC8 enzyme inhibitory activity of a test substance, and
  - (ii) measuring the HDAC enzyme inhibitory activity of the test substance, wherein the HDAC enzyme inhibitory activity is one or more HDAC enzyme inhibitory activities selected from a group consisting of HDAC1, HDAC2, HDAC3, HDAC5, HDAC6 and HDAC7 enzyme inhibitory activities.

6. The method of claim 3, which is a method of selecting an IL-2 production inhibitor and/or an immunocyte proliferation inhibitor which have low GATA-1 production inhibitory activity, and which comprises steps (i) to  
5 (iii) below, wherein the IL-2 production inhibitor and/or the immunocyte proliferation inhibitor selectively inhibits HDAC4 and/or HDAC8 enzyme activity:  
(i) expressing each of the HDAC1, HDAC2, HDAC3, HDAC4, HDAC5, HDAC6, HDAC7 and HDAC8 genes to obtain respective  
10 enzyme solutions;  
(ii) measuring HDAC enzyme activity for each of the enzyme solutions in the presence of a test substance;  
(iii) selecting a test substance that selectively suppresses HDAC enzyme activity only when using an  
15 enzyme solution obtained by expressing the HDAC4 gene or the HDAC8 gene.

7. The method of claim 4, which is a method of selecting an immunosuppressant having low thrombocytopenic  
20 activity, and which comprises steps (i) to (iii) below, wherein the immunosuppressant selectively inhibits HDAC4 and/or HDAC8 enzyme activity:  
(i) expressing each of the HDAC1, HDAC2, HDAC3, HDAC4, HDAC5, HDAC6, HDAC7 and HDAC8 genes to obtain respective  
25 enzyme solutions;  
(ii) measuring HDAC enzyme activity for each of the enzyme solutions in the presence of a test substance;  
(iii) selecting a test substance that selectively suppresses HDAC enzyme activity only when using an  
30 enzyme solution obtained by expressing the HDAC4 gene or the HDAC8 gene.

8. The method of claim 4, which is a method of selecting an immunosuppressant having low thrombocytopenic

activity, and which comprises steps (i) to (iii) below, wherein the immunosuppressant selectively inhibits HDAC4 and/or HDAC8 enzyme activity:

- (i) measuring HDAC enzyme activity for an enzyme  
5 solution partially purified from human cells, in the presence of a test substance;
- (ii) measuring HDAC enzyme activity for an enzyme solution obtained by expressing the HDAC4 gene and/or the HDAC8 gene, in the presence of a test substance;
- 10 (iii) selecting a test substance that selectively suppresses HDAC enzyme activity only when using an enzyme solution obtained by expressing the HDAC4 gene and/or the HDAC8 gene, by comparing the enzyme activities measured in (i) and (ii).

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9. A method of selecting an immunosuppressant having low thrombocytopenic activity, which comprises steps (i) to (iii) below, wherein an HDAC inhibitor that specifically inhibits the formation of a complex of HDAC4 and N-CoR  
20 is selected from among test HDAC inhibitors:

- (i) expressing the HDAC4 gene and the N-CoR gene to obtain an enzyme solution;
- (ii) allowing the enzyme solution to coexist with a test HDAC inhibitor;
- 25 (iii) determining whether or not a complex of HDAC4 and N-CoR is formed in the mixture of enzyme solution and test HDAC inhibitor obtained in (ii).

10. A method of selecting an immunosuppressant having  
30 low thrombocytopenic activity, which comprises steps (i) and (ii) below, wherein an HDAC inhibitor that specifically inhibits the formation of a complex of the HDAC4 fusion protein comprising at least a portion of the HDAC4 protein, and the N-CoR fusion protein

comprising at least a portion of the N-CoR protein, is selected from among test HDAC inhibitors:

- (i) expressing the gene that encodes the HDAC4 fusion protein and the gene that encodes the N-CoR fusion protein in cells;
- (ii) determining whether or not the test HDAC inhibitor inhibits the formation of a complex of the HDAC4 fusion protein and the N-CoR fusion protein.

11. A method of selecting a compound having low thrombocytopenic activity and having immunosuppressive activity, which comprises steps (i) and (ii) below, wherein an HDAC inhibitor that suppresses the expression level of HDAC4 and/or HDAC8 is selected from among test HDAC inhibitors:

- (i) allowing cells that express HDAC4 and/or HDAC8 to coexist with a test HDAC inhibitors;
- (ii) measuring the HDAC4 and/or HDAC8 expression level in the cells.

12. A method of selecting a compound having low thrombocytopenic activity and having immunosuppressive activity, which comprises steps (i) and (ii) below, wherein an HDAC inhibitor that selectively inhibits the binding of HDAC4 and/or HDAC8 and an HDAC4- and/or HDAC8-specific ligand is selected from among test HDAC inhibitors:

- (i) expressing the HDAC4 and/or HDAC8 gene to obtain an enzyme solution;
- (ii) measuring the binding activity of the HDAC4 and/or HDAC8 enzyme and the HDAC4- and/or HDAC8-specific ligand for the enzyme solution in the presence of an HDAC4- and/or HDAC8-specific ligand and a test HDAC inhibitor.

13. An assay kit for the selection of an immunosuppressant having low thrombocytopenic activity including a selective HDAC4 and/or HDAC8 inhibitor, which includes at least (i) and (ii) below:
- 5 (i) enzyme solutions prepared by expressing each of the HDAC1, HDAC2, HDAC3, HDAC5, HDAC6 and HDAC7 genes;  
(ii) an enzyme solution prepared by expressing each of the HDAC4 and/or HDAC8 gene;
- 10 14. A DNA having the base sequence that encodes the amino acid sequence shown by SEQ ID NO:4 or SEQ ID NO:6.
- 15 15. An HDAC4 variant that is the amino acid sequence shown by SEQ ID NO:4 or SEQ ID NO:6.
16. A method of inhibiting IL-2 production and/or immunocyte proliferation with low GATA-1 production inhibitory activity, which comprises administering an effective amount of selective HDAC4 and/or HDAC8
- 20 inhibitor to a subject.
17. A method of suppressing immunity with low thrombocytopenic activity, which comprises administering an effective amount of selective HDAC4 and/or HDAC8
- 25 inhibitor to a subject.
18. Use of a selective HDAC4 and/or HDAC8 inhibitor for the production of an agent for inhibiting IL-2 production and/or an agent for inhibiting immunocyte
- 30 proliferation which have low GATA-1 production inhibitory activity.

19. Use of a selective HDAC4 and/or HDAC8 inhibitor for the production of an agent for suppressing immunity having low thrombocytopenic activity.